

inquirers for it. The animal and shell are closely allied to the *Dentalium Trachea* (or *imperfuratum*) of Montagu (*cæcum* of Fleming), for which that accurate observer of British Mollusca, Mr. Clark, proposed the significant name of *Dentaliopsis*. It may have been confounded by British conchologists with the young of *Skenea depressa*, but is a very distinct species. The *Helix nitidissima* of Adams was evidently known to Montagu, as in one of his letters to Mr. Dillwyn he mentions having found "a recent (minute) British Ammonite," which this beautiful species resembles in form and markings.—
J. GWYN JEFFREYS.

Have Ants, when deprived of their Queen, the power of selecting one of their number and converting her into a fertile female?

Phil. Hall, Leeds, January 10, 1848.

DEAR SIR,—I shall feel obliged if any of your entomological readers can inform me whether they know a species of Black Ant, inhabiting this country, whose *queen* is *not* distinguished from the workers by her *larger size*. My reason for wishing for this information arises from the following circumstance:—In August 1846 I procured a colony of black ants, which I supposed were the *Formica fusca*, from the woods near Kirkstall Abbey. I found them beneath a patch of moss and stones, and consisting of about sixty individuals. I suspected at the time that the queen escaped me, as no one specimen appeared distinguished from the remainder by *regal* characters, which I frequently regretted. On the 29th of March 1847, however, when looking at my formicary, I observed one ant carrying a small white mass in its mandibles, which upon closer examination I found to my great astonishment was an egg; on the following day there were probably twenty eggs, and the number continued to increase until June, when there would be at least sixty, of different sizes, and some had become larvæ. Two of these increased in size so much as to lead me to suspect they would prove the larvæ of queens, being considerably larger than the ants themselves. By the end of July they had become pupæ, and were inclosed in cocoons as large as a grain of wheat; these now appeared to absorb all the attention of the workers, and the remainder of the eggs and larvæ decreased, for want, as I presume, of sufficient attendance. During the month of August I found one day all dead or dying with the exception of three or four specimens, which I could not account for unless it arose from the formicary having been exposed to a great heat from the sun in my window during the day, from which they could not escape, having forgotten to put up the shutters, which are for the prevention of light and too great a degree of heat.

The point however upon which I want information as connected with the above colony is this:—From whence did the eggs proceed? As I have before stated, there was not *one* I could suspect more than another of being the royal mother from external characters, while in seven other colonies of different species I then possessed, the identification was very easy and self-evident. Now as we know bees when deprived of their queen have the power of selecting one or more

larvæ of workers (which are barren females) and converting them into queens by feeding them with peculiar food, used only for such as are destined for sovereignty, and as the working ants are also *barren* females,—is it probable that the ants have the power by selecting one of their number to convert her into a *fertile* female by the means of some peculiar treatment which may cause the more full development of those organs essential for impregnation? I am aware in the case of the bees this is accomplished in infancy; still, as the *matured* workers have the *female* organs *perfect*, though in a comparatively *low* state of development, is it irrational to suppose, that when circumstances make it necessary, even at a *later* period of life, these same all-important parts may be stimulated and rendered fit for the accomplishment of so desirable an object as reproduction? I am also aware that working ants, like working bees and wasps, do occasionally lay eggs; but when this does take place, they invariably produce males, which I suspected could not be the case with those alluded to, from the great disparity of size observable in the larvæ and cocoons, and which I should have been able to ascertain with certainty had not the before-mentioned accident befallen them.

I remain, dear Sir, yours respectfully,

To Richard Taylor, Esq.

HENRY DENNY, A.L.S.

On the Digestive Apparatus of the Gnat, Culex pipiens, Linn.

By F. POUCHET.

The digestive apparatus of the Gnat is highly complicated: the mouth is composed of two mandibles furnished with a row of stiff fixed hairs, and of two maxillæ bearing moveable cilia like the blades of a fan and destined to collect the alimentary granules.

The intestinal tube is remarkable from the presence of eight isolated vesiculiform stomachs which are ovoid, thin, arranged symmetrically around the intestine, and each communicating with it by means of a short canal situated at the union of the anterior third with the two posterior thirds of its internal region. These eight cavities represent so many stomachs, and cannot be compared with the respiratory vesicles described by Treviranus, Ramdohr, Carus, Meckel, Owen, Newport and Lacordaire, in several insects belonging to the order Diptera or Lepidoptera. At first sight these gastric cavities are observed to be more or less filled with nutritious matter similar to that perceptible in the remainder of the intestinal tube. These vesicles in fact are seen to contract from time to time and successively, in order to allow the alimentary substance to pass into the intestines. The contractions are repeated at intervals of from twenty-five to thirty seconds; moreover on immersing these insects in liquids coloured with carmine or indigo, the eight stomachs are observed in the course of half an hour or sometimes less to be perfectly filled with these substances; the nature of these organs is consequently beyond doubt.

Although certain observers, as Swammerdam and Leon Dufour, have asserted that several insects ruminates, it cannot be admitted